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# Firm Size and Labour Market Segmentation Theory: Evidence from Turkish Micro Data

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**Abstract**

Wage formation in the labor market is analyzed with different perspectives and methods by Orthodox and Heterodox economists. Especially one of the main theories of how wages determined on the firm and industry is the theory of Segmented Labour Markets (SLM) based on the Institutional Economics and New Institutional Economics. Labor market segmentation theory suggests that jobs and labor are divided into labor market segments. While jobs are divided into "good jobs" and "bad jobs", labor market is stratified according to job and wage. In this study, by drawing on micro-data from Turkish Statistical Institute (TurkStat) Household Labour Force Survey (HLS), we aim to analyze the theory of SLM in Turkey on the basis of firm size for the year of 2011. In this context, Binary Logistic Regression Analysis was used. According to the analyses results, findings indicate that according to the firm size Turkish labour market shows a stratified structure in terms of gender, age, education, marital status, main activity of workplace (sector), status of workplace and occupations (International Standard Classification of Occupations-ISCO-88).


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*Keywords:* Labor Market Segmentation Theory, Stratification, Firm Size, TurkStat HLS micro data set 2011.

## 1. Introduction

Labour market segmentation theory suggests that jobs and labor are divided into labor market segments. Due to the argument of workers and jobs are not matched smoothly by a universal market mechanism, this theory challenges Neoclassical economic theory and human capital theory (Dickens and Lang, 1992; Bauder, 2001). First of all, theories of economic and labor market segmentation are derived from dual economy theory (e.g., Averitt, 1968) and dual labor market theory (e.g., Doeringer and Piore, 1971), respectively. Like dual economic theory, a dichtomization of the labor market is suggested (Smith and Noma, 1985) as a basic distinction, labour market divided into two separate submarkets or segments on the grounds of different labor market characteristics and behavioral rules as primary and secondary markets. Latter, Piore's (1975) trichotomy of primary- upper-tier, primary-lower-tier, and secondary markets was included in this classification. Moreover, the division of the primary market into a series of discrete internal labor markets was included (Doeringer and Piore, 1971). The primary and secondary segments which are used in the terminology of dual labor market theory are differentiated mainly by stability characteristics (Reich, et. al, 1973). The first sector which is also called "good jobs" is characterized by higher wages, stabile working habits, best

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labour conditions, job security, unionization, long-term business relationship, access to the firm via specific training, high internal upward mobility possibilities (intra-firm or intra-sector), career opportunities, greater access to health insurance and pension benefits and longer job tenure. The labour force who works in the "good jobs" is the core labour force. Contrary, the second sector also called "bad jobs" is characterized by low wages, not require and often discourage stable working habits, high turnover, few job ladders, insecurity, fewer opportunities for an upward career, low qualification levels, harsh and often arbitrary discipline and poor working conditions (Reich, et. al, 1973; Wacher, 1974; Osterman, 1977; Horn, 1980; Anselme and Weisz, 1985; Rebitzer and Robinson, 1991; Lamotte and Zubiri-Rey, 2008). Secondary jobs are mainly filled by minority workers, women and youth (Reich, et. al, 1973). Moreover, while "good jobs" are present in internal labor market firms which are also described as firm or career market, "bad jobs" are present in external labor market firms and labour hire companies (Commons 1931, 1934). Unequal distribution of income, unemployment and discrimination causes to increase the number of firms in the external labor market. At this point, due to "bad jobs" in the market, high productive individuals are obliged to work for low wages. "Bad jobs" could not able to provide the opportunities offered by "good jobs" and they are the external market businesses done by periphery labour force.

Within in the framework of the theory above, in order to test the validity of Labour Market Segmentation Theory in Turkish Labour Market a set of Turkstat HLS micro data was used. Therefore, jobs in Turkish labour market are analyzed in terms of 14.876.480 individuals composed of waged, salaried and daily waged (WSD) employees. According to the findings, most of the WSD employees are working in "bad jobs" where 63.6% "bad jobs" and 36.4% "good jobs". It is found that, the increase of firm size leads to increase the proportion of WSD employees who work in "good jobs". While 15.6% of WSD employees employed in the firms with less than 10 employees, 67.6% of WSD employees employed in the firms with 500 and more employees. On the contrary, the ratios of WSD employees work in "bad jobs" are 84.4% and 32.4%, respectively. According to the TurkStat 2011 Small and Medium-sized Enterprise Statistics, Small and Medium-sized Enterprises (SMSs[a]) which employed max 249 employee in industry and services sectors, constitute 99.9% of enterprises and 76% of employment in Turkey[b]. TurkStat HLS micro-data indicates that while 99.3% of WSD employees employed in the agricultural sector firms having max 249 employees, 95.8% of them employed in the "bad jobs". Thereby, one can say that qualified or non-qualified labour force employed as WSD employees could have a job in "bad jobs" in Turkey. The WSD employees employed in "good jobs" especially concentrate on firms in the service sectors with more than 250 employees.

In this study, by using the Binary Logistic Regression Analysis we aim to analyze the relationship between firm size and the labour market segmentation theory in Turkey. The data provided from TurkStat HLS micro-data for 2011. Based on the Labour market segmentation theory, the relationship between income and jobs classified according to the ISCO-88 is analyzed with respect to firm size, education (the graduation department of high school and university) and job status. To the best of our knowledge, by using HLS micro-data this study is the first attempt to reveal the "good jobs" and "bad jobs" within the frame work of labour market segmentation in Turkey.

The paper is structured as follows. A brief overview of labor market segmentation theory is presented in Section 1. Following introduction, Section 2 presents the literature review and hypothesis. Research methodology, statistical model and the constraints of the study will take place at the third section. In Section 4, the analyses findings are presented and the validity of the theory in Turkish labor market will be evaluated. In the last section, some concluding remarks are made.

[a] SMS's are the firms that employed 1-249 employees. There were 2.591.082 business firms in 2011.

[b] TurkStat, Small and Medium-sized Enterprise Statistics, http://www.tuik.gov.tr/PreHaberBultenleri.do?id=15881, Access Date:06.02.2014.

## 2. Literature Review And Hypotheses

### *2.1. The Stratification in Turkish Labour Market*

Turkish labor market shows a stratified structure with agriculture-non agriculture sector, formal-informal sector, registered-unregistered sector, public-private sector and the wage differential between man and woman. The main source that can is used in the analysis of stratification in Turkey is the TurkStat HLS micro-data (2011). However, all properties that constitute "good jobs" and "bad jobs" in the labour market segmentation theory are not included in the TurkStat HLS micro-data. For this reason, in this study the distinction of "good jobs" and "bad jobs" were classified according to the TurkStat HLS micro-data (2011). In this context, the distinctive properties of "good jobs" are defined as; stabile and permanent working habits, high wages, registration to social security institution. On the other hand, "bad jobs" are defined as; low wages, irregular and discontinuity working habits and insecurity.

In this study, the analysis of "good jobs" and "bad jobs" was made in accordance with the "wage differentials" which is the main research subject of labour segmentation theory, in terms of the WSD employees. The distinction of "good jobs" and "bad jobs" was analyzed according to the "firm size" which is the main issue of the study. According to the TurkStat HLS micro-data (2011), 61.7% (14.846.480) of total employed (24.110.475) is WSD employees. While 4.2% of WSD employees are employed in agriculture, 95.8% of WSD employees are employed in non-agricultural sectors, 27.1% in industry, 9.2% in construction and 59.5% in services, respectively. %74.9 of WSD employees are working as registered and 25.1% is working as unregistered. While 87.7% of WSD employees are working in a permanent job, 12.3% of WSD employees are working in a temporary job. The WSD employees in private sector are mostly employed in regular workplace with 88.2% and 11.8% of them employed in irregular workplaces such as field, garden, market place, mobile and unstable, work at home.

According to the TurkStat HLS micro data set, it can be observed that "Good jobs", especially in large scale firms, require high qualities for employees due to the monitoring difficulties therefore "good jobs" offer higher wages and cause to increase employees' income level. According to TurkStat HLS micro-data (2011) income is the net cash income that WSD employees' has achieved in last month in terms of Turkish Lira. In this study, income divided by two groups: individuals who earn income lower than 468.68[c] Euro, working in a "bad job" (low income) and individuals who earn 468.68 Euro and more, working in a "good job" (high income). According to this classification, 59.6% of WSD employees are having low income and 40.4% of WSD employees are having high income.

### *2.2. The Relationship Between Firm Size and "Good Jobs" and "Bad Jobs"*

There is a relationship between firm size and wages, which is accordingly related with whether a job is a "good job" or "bad job". While "good jobs" (primary jobs) pay above market clearing wages because these jobs are difficult to monitor, "bad jobs" (secondary jobs) pay a market clearing wage due to no monitoring difficulties (Rebitzer and Robinson, 1991). Especially in the good jobs wages will be higher when firm size increases due to the monitoring difficulties. Bulow and Summers (1986) suggest that monitoring is more difficult or costly for large employers, therefore large firms in "good jobs" offer higher wages. While there is a significant effect between firm size and wages in "good jobs", a smaller size effect was observed between firm size and wages in "bad jobs" due to easy monitoring. The size effect of firms on wages is considerably larger in primary jobs than secondary jobs (Rebitzer and Robinson, 1991). They also found that due to the presence of multi-plant employers, the firm size effect on wages in primary job is larger. In the study of Fink (2010) entitled 'In-work poverty and labour market segmentation in the EU – Austria', firm size is found an efficient factor in the wage determination of men and women. The employment of men in the firms with minimum 25 employees lead to increase the possibility of getting low wages. In a similar manner, women employed in the firms with 5-10 employees are also working in low-paid jobs. Moreover, "good jobs" (primary) workers are also found to be more heavily concentrated in large plants and firms (Rebitzer and Robinson, 1991).

[c] The average EURO effective sales values between the dates of TCMB 03.01.2011 and 31.12.2011 were taken in the calculation of exchange rate. (1 Euro=2.1358 TL)

According to the Turkish Social Security Institution statistics (2011), the number of registered workplace was 1.435.879. 85.2% of these businesses (1.224.740) were the workplace with less than 10 registered employees, 12.7% was the workplace with less than 10-49 registered employees, 1.8% was the workplace with less than 50-249 registered employees and 0.7% of workplace with 500 and more employees. According to TurkStat HLS micro-data (2011) firm size is classified as six groups; firms with less than 10 employees, 10-24, 25-49, 50-249, 250-499 and 500 and more. In this context, the first hypothesis is given below:

*H1: There is a relationship between "the firm size" and "the qualification of job".*

*2.3. Hypothesis analyzed under the firm size sub-groups*

After the two main groups "good jobs" and "bad jobs" were constructed with the firm size; the relationship between gender, age, education, marital status, main activity of workplace (sector), status of workplace and occupations (according to the ISCO-88) will be analyzed by using binary logistic regression in each sub-group.

In this context, the first sub-group that considered identifying the labour market stratification was gender. Gender can be an influential factor working in a "good-job" or "bad-job". Gender point of view can be determined the employment status of women. According to the labour market segmentation theory, married women may incur segmentation more frequently than men due to their non-continuous participation in the labor market (Magnac, 1991). In the study of Akçomak ve Gürcihan (2013) importance of occupations in Turkish labour market was analyzed and the increase of wage inequality in women was observed in 2004. Therefore, the relationship between gender and qualification of job was tested with the hypothesis following:

*H2: There is a relationship between "the gender of WSD employees" and "the qualification of job".*

Turkey has a young population with an average age of 30. There has been a positive relationship between wage increase and seniority in internal labour market (Doeringer and Piore, 1971). In other words, the possibility of wage increase and working in a "good job" rises as a result of increase of seniority and experience with age. In this context, the following hypothesis proposed:

*H3: There is a relationship between "the age of WSD employees" and "the qualification of job".*

Education is one of the important facilities that increase the mobility of workforce in the labour market. Accordingly, education is accepted as a passport to "good jobs". However, through the effect of segmentation in the labour market, education may not provide access to "good jobs". Especially, dualism and segmentation of labour market is one of the problems that occur in the labor market of developing countries (Pagés and Stampini, 2009). According to the some dual labor market theorists the returns to human capital tend to be greater in the "good jobs" (primary sector) where internal labor markets facilitate more extensive skill development and on-the-job training (Osterman, 1975; Sakamoto and Chen, 1991). While "good jobs" (primary jobs) offer high wages and large returns to education and experience, capable workers are willing to accept primary jobs. In contrast to "good jobs", "bad jobs" (secondary jobs) offer small returns to education and experience (Rebitzer and Robinson, 1991). On the other hand, schooling and experiences are less highly rewarded in the "bad jobs" (Sakamoto and Chen, 1991). However, Rebitzer and Robinson (1991) found that increasing years of schooling increases a worker's probability of hiring for a "good job".

In this study, in Turkey, education level of WSD employees are classified as five groups; an individual without a primary school degree, primary school degree (5 year), middle school and elementary school degree (8 year), general high school (vocational or technical high school) degree and university, faculty or upper degree. In the light of the literature, we argue whether the relationship between education level and qualification of job was tested with the hypothesis following:

*H4: There is a relationship between "the education level of WSD employees" and "the qualification of job".*

The distribution of marital status of WSD employees in Turkish labour market is as follows: 67.3% married, 27.7% single (never married), 2.4% divorced and 0.6% widowed. According to the TurkStat HLS micro data set, 78.4% WSD employees working in "good job" are married. Being married may require family responsibilities and working in a continuous, regular, registered and higher-paying jobs as much as possible due to the households needs.

*H5: There is a relationship between "the marital status of WSD employees" and "the qualification of job".*

In 2011, 4.5% of WSD employees in agricultural sector, 26.8% of WSD employees in manufacturing sector and 46% of WSD employees in service sector worked in "good jobs". According to the data, in Turkey, working in the agricultural sector increases the possibility of working in a "bad job". The relationship between the sector of employees employed and the qualification of job was tested with the following hypothesis.

*H6: There is a relationship between "the sector of WSD employees" and "the qualification of job"*

Employees that employed in a "good jobs" (primary job) also have longer current job tenure and there are especially higher returns to job tenure in "good jobs" (primary job) than "bad jobs" (secondary jobs) (Rebitzer and Robinson, 1991). In this context, the micro data set that used in the study was grouped the status of workplace as private, public and other. It is observed that, job seekers and employees are preferred public sector and they passed many exams in order to get a job in public sector. In Turkey, every year the number of applicants who apply Public Personnel Selection Examination is increasing, and nearly one million people take the exam to find a job in public sector. The main reason of this situation can be regarded as stable job, stable income and guaranteed social security. Thus public sector is the sector that substantially provide "good job" in Turkey. In this context, the following hypothesis proposed:

*H7: There is a relationship between "the status of workplace" and "the qualification of job".*

"Good jobs" which can be regarded as upper tier jobs are highly concentrated in the professional, managerial, public administration, technical jobs and some manufacturing categories. Especially the wage-setting mechanism of qualified or semi-qualified jobs is affected by plant and industry characteristics as well as by skill, education and experience which are attributed to "good jobs" features (Osterman, 1975). According to the TurkStat HLS micro-data (ISCO-88 classification), occupations are grouped under 26 titles and the relationship between occupations of WSD employees and the qualification of job was tested according to the hypothesis below:

*H8: There is a relationship between "the occupation of WSD employees" and "the qualification of job".*

## 3. Methodology

### *3.1. Research Goal*

The aim of this study is to determine the stratification of Turkish labour market and to analyze the factors that affect the stratification in the Turkish labour market. Afterwards, we focus on the main issue of the study, which is to analyze the effect of selected variables on the stratification of labour market according to the firm size. Thus, in analyzes 2011 TurkStat HLS micro data set was used.

### *3.2. Sample and Data Collection*

The aim of TurkStat HLS, is to obtain information on the structure of the labour force in the country. This includes information on economic activity, occupation, status in employment and hours worked for employed persons; and information on the duration of unemployment and occupation sought by the unemployed. The independent variables of the analysis are gender, age (grouped), education, marital status, main activity of workplace (sector), status of workplace (public-private), firm size and occupations. In the analysis, the stratification of jobs are identified as dependent variables ("bad jobs":0 and "good jobs:1).

*3.3. Method*

When the dependent variable consists of two levels or multilevel categorical data, the logistic regression analysis is an important method that used to analyze the cause-result relationship between dependent and independent variables (Bahadır and Özdemir, 2013). Due to the aim of logistic regression is to estimate the value of categorical dependent variable, actually here is the estimation of two or more groups "membership" is attempted. In this context, one of the aims of this analysis is the classification and the other is to analyze the relationship between dependent and independent variables (Mertler and Vannatta, 2005). In other words, logistic regression is a conventional statistical technique used for data classification problem. Binary logistic regression is a regression method for predicting a binary dependent variable. The dependent variable takes 0 or 1 values (Tunç, 2012).

General linear regression model can be written as,

$$E(y_i/x_{i1},\dots,x_{ip}) = \sum_{k=0}^{p} \beta_k x_{ik}, \quad i = 1,\dots,n$$

where, y is the dependent variable and x is the independent variables. If the dependent variable takes 0 or 1 values, the equation can be written as

$$E(y_i) = P(y_i = 1) = \sum_{k=0}^{p} \beta_k x_{ik}$$

The equation which can take the value between 0 and 1 is called linear probability model. However, in this model, due to no restrictions on the independent variables to get the equation above is not always possible. In this context, not to encounter such a situation, it is necessary to define probability values between - ∞ and + ∞ through various transformations. Thus, in the linear probability model by making the P / (1-P) transformation on the probability values, the outcome variables limits are determined as 0 and + ∞, then taking the natural logarithm of the ratio the outcome variables limits are determined as - ∞ and + ∞. After these transformations, the new function can be written in the following (Tatlıdil, 1996):

$$E(y_i) = L_i = \ln\left(\frac{P_i}{1-P_i}\right) = \sum_{k=0}^{p} \beta_k x_{ik}$$

In the logistic model or simply known as logit model when $Z_i = \sum \beta_k x_{ik}$ is written, the $P_i$ probability value which is called logistic function can be written as the following (Agresti, 2007; Nikolic et al., 2013).

$$P_i = \frac{e^{Z_i}}{1+e^{Z_i}} = \frac{1}{1+e^{-Z}}$$

The odds ratio which is calculated by the division of the probability of occurrence of an event to the probability of not to occur is $e^{Z_i}$ (Pohlman and Leitner, 2003). The odds ratio shows the observation probability of how many times or what percentage greater is the dependent variable with the effect of independent variable (Kumaş and Çağlar, 2010). To evaluate the cohesion of the model as a whole, the Hosmer-Lemeshow goodness of fit test chi-square is used (Bender and Grouven, 1998). The analysis of significance of regression coefficients in the model is calculated by using the Wald statistic, individually. Another approach that can be used for adaptation of the model is the ratio of correct classification (Karagöz et al., 2010; Nargeleçekenler, 2005). However, in the logistic regression analysis, there is no similar widely accepted measure as determination coefficient in the regression analysis. In addition to this, Cox&Snell $R^2$ or Nagelkerke $R^2$ which represent the changes of variance in the dependent variable that explained by the logistic model can be used. Due to the upper limit of Cox&Snell $R^2$ value is generally smaller than 1, it is difficult to interpret. For this reason the Nagelkerke $R^2$ is preferred where it takes the value between 0 and 1 (Albayrak, 2006).

The logistic regression analysis was applied in two different forms. First of all, the model analysed by taken all the variables mentioned in the previous section. In the analysis, the factors affecting the stratification of job and the effect of factors on the stratification of job were examined. Secondly, analyses performed separately for each firm size and according to the firm size the factors affecting the stratification the job are discussed comparatively. In the model of the second analysis, other variables were given except firm size variable. In the logistic regression analysis, researches for each variable was done according to a determined reference group and then reviewed. When determining the reference group of variables, usually the most frequent (or abundant) group in the labour market was preferred. In the variables of gender, age, education, marital status, main activity of workplace (sector), status of workplace and occupations, the most-frequent categories that observed in Turkish labour market in 2011 were taken as the reference group. The group of university, faculty or upper degree education level was determined as the reference group of education variable. Unlike from the reference group of other variables, in the education variable the highest probability of working in a "good job" is selected as reference group. According to the TurkStat HLS micro-data set, 51.1% of WSD employees who has a university, faculty or upper degree education level are working in "good jobs".

### *3.4. Limitations*

The scope of analyze is the WSD employees in Turkey for the year of 2011. However, there are some limitations in the study. Due to the structure of the micro-data set in which all variables that define the properties of "good job" are not take place, the data set of analyze is restricted. Thus, the available micro-data set was used to analyze the hypothesis above. Moreover, due to the lack of data in the micro-data set, it is not possible to include some variables such as contract duration, unionization structure, and carrier opportunities which are used to identify jobs as good and bad in the labour market segmentation theory.

Additionally, WSD employees' working conditions in a regular job can be determined only for private sector. The reason is the question of "type of your workplace" was asked only to employees in the private sector. Thereby, the "regularity" that used to describe the "good job" cannot be used to determine the public sector and other sectors and therefore cannot be used to identify the "the qualification of job". Furthermore in the analysis of firm size, due to the inadequate data, the employees that employed in the firms with 250-499 employees and more were combined into a single group.

Despite these shortcomings, this study can be considered as the first attempt in terms of the scope, hypothesis and the method of Turkish labour market segmentation.

### *3.5. Analyses and Results*

#### *3.5.1. General View of the "Good Jobs" and "Bad Jobs" According to the Selected Determinants from Turkish Labour Market*

The results of logistic regression analyzes where factors affecting the stratification of jobs, were given in Table 1. A statistically significant relationship was found between "firm size" and "job quality". There by, Hı hypothesis was accepted (p value=0.000). Within the scope of the study, the variables such as gender, age, education level, marital status, sectors employed, the status of workplace and occupation were found to be effective in the determination of jobs as "good jobs" or "bad jobs".

According to Table 1, compared to a man, being a woman increases the probability of working in "bad jobs". According to TurkStat HLS micro-data, men's probability of working in "good jobs" is approximately two times higher than the women's probability.

Table 1. The Results of Logistic Regression Analysis according to the Selected Variables of "Good jobs" and "Bad-jobs"

| | β | Standard Error | Wald Statistics | d.f. | p value | Odds Ratio (exp(β)) | 95 % C.I. for Odds Ratio | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | Lower | Upper |
| *Gender (R.G*.: Male)* | -,698 | ,002 | 99535,360 | 1 | ,000 | ,498 | ,496 | ,500 |
| *Age group (R.G.: 25-29)* | | | 298893,417 | 10 | ,000 | | | |
| *Age group 15-19* | -2,452 | ,010 | 63271,392 | 1 | ,000 | ,086 | ,084 | ,088 |
| *Age group 20-24* | -,873 | ,003 | 73495,323 | 1 | ,000 | ,418 | ,415 | ,420 |
| *Age group 30-34* | ,445 | ,002 | 33417,241 | 1 | ,000 | 1,560 | 1,553 | 1,568 |
| *Age group 35-39* | ,626 | ,003 | 54532,537 | 1 | ,000 | 1,871 | 1,861 | 1,881 |
| *Age group 40-44* | ,724 | ,003 | 62120,071 | 1 | ,000 | 2,062 | 2,050 | 2,074 |
| *Age group 45-49* | ,654 | ,003 | 39434,878 | 1 | ,000 | 1,923 | 1,911 | 1,936 |
| *Age group 50-54* | ,393 | ,004 | 8762,346 | 1 | ,000 | 1,481 | 1,469 | 1,493 |
| *Age group 55-59* | -,140 | ,006 | 509,307 | 1 | ,000 | ,870 | ,859 | ,880 |
| *Age group 60-64* | -,501 | ,010 | 2381,888 | 1 | ,000 | ,606 | ,594 | ,618 |
| *Age group 65+* | -,831 | ,017 | 2265,102 | 1 | ,000 | ,436 | ,421 | ,451 |
| *Education level (R.G.: university, faculty or upper)* | | | 383931,026 | 5 | ,000 | | | |
| *Without any scholl degree* | -2,510 | ,007 | 114126,807 | 1 | ,000 | ,081 | ,080 | ,082 |
| *Primary school(5 year)* | -1,740 | ,003 | 340071,427 | 1 | ,000 | ,176 | ,175 | ,177 |
| *Middle school and elemantry school (8 year)* | -1,340 | ,003 | 183791,063 | 1 | ,000 | ,262 | ,260 | ,263 |
| *General High school* | -,878 | ,003 | 93291,802 | 1 | ,000 | ,416 | ,413 | ,418 |
| *Vocational or technical high school* | -,857 | ,003 | 88802,775 | 1 | ,000 | ,424 | ,422 | ,427 |
| *Marital Status (R.Gr.: Single (never married)* | | | 49994,324 | 3 | ,000 | | | |
| *Married* | ,504 | ,002 | 46731,923 | 1 | ,000 | 1,655 | 1,647 | 1,662 |
| *Divorced* | ,138 | ,005 | 637,451 | 1 | ,000 | 1,148 | 1,136 | 1,161 |
| *Widowed* | ,148 | ,013 | 125,140 | 1 | ,000 | 1,159 | 1,130 | 1,190 |
| *Main activity of workplace (sector) (R.G.: Service)* | | | 11166,921 | 3 | ,000 | | | |
| *Agriculture* | -,805 | ,010 | 6338,418 | 1 | ,000 | ,447 | ,438 | ,456 |
| *Industrial* | -,165 | ,002 | 4923,744 | 1 | ,000 | ,848 | ,844 | ,852 |
| *Construction* | -,152 | ,004 | 1827,126 | 1 | ,000 | ,859 | ,853 | ,865 |
| *Status of workplace (R.G.:Private)* | | | 755159,326 | 2 | ,000 | | | |
| *Public* | 2,331 | ,003 | 751884,068 | 1 | ,000 | 10,291 | 10,237 | 10,345 |
| *Others* | ,068 | ,008 | 73,868 | 1 | ,000 | 1,070 | 1,054 | 1,086 |
| *Firm size (R.Gr.: Less than 10)* | | | 241443,533 | 5 | ,000 | | | |
| *10-24* | ,741 | ,003 | 81721,547 | 1 | ,000 | 2,097 | 2,086 | 2,108 |
| *25-49* | ,830 | ,002 | 126127,076 | 1 | ,000 | 2,294 | 2,283 | 2,304 |
| *50-249* | ,864 | ,002 | 141003,991 | 1 | ,000 | 2,374 | 2,363 | 2,385 |
| *250-499* | 1,014 | ,004 | 76176,906 | 1 | ,000 | 2,757 | 2,738 | 2,777 |
| *500 and more* | 1,355 | ,003 | 154894,563 | 1 | ,000 | 3,876 | 3,850 | 3,902 |
| *Occupations (R..G.: Personal and protective services workers)*** | | | 703545,522 | 25 | ,000 | | | |
| *11* | -1,214 | ,009 | 16499,061 | 1 | ,000 | ,297 | ,292 | ,303 |
| *12* | 2,309 | ,006 | 152691,264 | 1 | ,000 | 10,067 | 9,951 | 10,184 |
| *13* | 1,839 | ,007 | 67716,632 | 1 | ,000 | 6,289 | 6,203 | 6,377 |
| *21* | 2,307 | ,008 | 77930,463 | 1 | ,000 | 10,049 | 9,887 | 10,213 |
| *22* | 2,451 | ,013 | 36771,563 | 1 | ,000 | 11,601 | 11,314 | 11,895 |
| *23* | ,824 | ,005 | 24816,535 | 1 | ,000 | 2,280 | 2,256 | 2,303 |
| *24* | 1,605 | ,006 | 62366,235 | 1 | ,000 | 4,976 | 4,914 | 5,040 |
| *31* | 1,009 | ,005 | 46137,957 | 1 | ,000 | 2,743 | 2,718 | 2,768 |
| *32* | 1,554 | ,007 | 44092,217 | 1 | ,000 | 4,732 | 4,664 | 4,802 |
| *33* | -1,068 | ,017 | 3839,964 | 1 | ,000 | ,344 | ,332 | ,356 |
| *34* | 1,402 | ,004 | 114878,557 | 1 | ,000 | 4,062 | 4,029 | 4,095 |
| *41* | ,758 | ,004 | 45489,519 | 1 | ,000 | 2,133 | 2,119 | 2,148 |
| *42* | ,701 | ,005 | 20971,368 | 1 | ,000 | 2,017 | 1,997 | 2,036 |
| *52* | ,449 | ,004 | 12802,812 | 1 | ,000 | 1,567 | 1,555 | 1,579 |
| *61* | -,688 | ,013 | 2879,173 | 1 | ,000 | ,502 | ,490 | ,515 |
| *71* | ,204 | ,005 | 1778,116 | 1 | ,000 | 1,227 | 1,215 | 1,238 |
| *72* | ,705 | ,004 | 31122,460 | 1 | ,000 | 2,024 | 2,008 | 2,040 |
| *73* | ,593 | ,008 | 5468,654 | 1 | ,000 | 1,809 | 1,781 | 1,838 |
| *74* | ,332 | ,005 | 5083,277 | 1 | ,000 | 1,394 | 1,381 | 1,406 |
| *81* | ,087 | ,007 | 147,049 | 1 | ,000 | 1,091 | 1,075 | 1,106 |
| *82* | ,037 | ,004 | 75,190 | 1 | ,000 | 1,038 | 1,029 | 1,046 |
| *83* | ,464 | ,004 | 16028,202 | 1 | ,000 | 1,590 | 1,579 | 1,602 |
| *91* | -1,018 | ,004 | 59047,707 | 1 | ,000 | ,361 | ,358 | ,364 |
| *92* | -1,885 | ,017 | 11866,627 | 1 | ,000 | ,152 | ,147 | ,157 |
| *93* | -,823 | ,005 | 26715,282 | 1 | ,000 | ,439 | ,435 | ,444 |
| *Constant* | -1,127 | ,005 | 44254,237 | 1 | ,000 | ,324 | | |

*R.G. reference group; **ISCO 88 occupation groups were shown in Appendix Table 1

Age factor is another feature that determines the qualification of 'job'. Among the WSD employees the largest part belongs to the age group 25-29. The age group 25-29 was determined as reference group and their probability of working in "good jobs" is 11.628 times higher than the probability working in "good jobs" of age group 15-19. For the age group 35-49, the probability working in "good jobs" is approximately two times higher than the age group 25-29. According to TurkStat HLS micro-data, average age of the employees is 37.35 (±12.491) and the average age of the WSD employees is 34.31 (±10.25). According to the data, as supported labour market segmentation theory, due to the experience and seniority increase depending on age, as age increases the probability of working in a "good job" increases.

According to the labour market segmentation theory, "good jobs" are the jobs that require qualifications. Thus, for an individual education and skill level can determine the probability of working in a "good job". In this study, with respect to educational status, the reference group of Turkey is determined as individual with 'university, faculty or upper degree' graduate and then it is found that this group's probability of working in "good jobs" is higher than the other groups. If a WSD employee do not graduated from any school, their probability of working in "bad jobs" is approximately 12.35 times higher than the 'university, faculty or upper degree' graduates. If a WSD employee graduated from 'high school and vocational-technical high school', their probability of working in "bad jobs" is 2.4 times higher than 'university, faculty or upper degree' graduates.

According to the analysis of relationship between marital status and "good jobs-bad jobs", it is found that being married provide an advantage of working in a "good-job". The probability of working in a "good-job" for married WSD employees is 1.66 times higher than that of single (never married), reference group. The probability of working in a "good-job" for divorced or widowed WSD employees is approximately 1.15 times higher than that of single (never married). According to the findings, not being married (single) increases the probability of working in "bad-jobs".

The sector that WSD employees employed is also an effective variable in the determination of the quality of "jobs". With respect to sectors employed, working in the service sector as a WSD employee is determined as reference group. In this context, the probability of working in a "good- job" for the WSD employees in the service sector is approximately 2.2 times higher than the agricultural WSD employees. Moreover, the probability of working in a "bad- job" for the industry and construction sector employees is 1.17 times higher than the employees in the service sector. The results indicate that, the probability of working in "bad jobs" as a WSD employee in the industry and construction sectors are close to each other.

In Turkey, working in the public sector increases the probability of encountering a "good job". The probability of working in a "good- job" for the WSD employees in the public sector is 10.29 times higher than WSD employees in the private sector (here is the reference group). Due to the public sector ensures job security, regular income, continuity and enrolment; it is the priority sector youths would like to work.

In this study a significant relationship was found between firm size and the quality of job. When firm size expands the probability of working in a "good job" increases: the probability of working in a "good- job" in firms that employ 500 and more employees is 3.9 times higher than the firms with less than 10 employees.

WSD employees are mostly employed under the occupational group of "Personal and Protective Services Workers (No. 51)". Therefore, in this study, in the analysis of relationship between "good job", "bad job" and occupations the aforementioned group is determined as the reference group. The results which are also supported the separation of secondary sector-external market of labour market segmentation theory indicate that in Turkey occupations of agriculture, livestock and forestry mostly located in the secondary sector and contain "bad jobs". In Turkey, working in the agriculture sector indicates working with low wages, irregular and discontinuity working habits and insecurity on the other hand it is the factor that increases the vulnerable employment. According to the analysis results, it is found that the probability of working in a "bad- job" and "the most disadvantage group" for the employees working in the "Agriculture, Livestock, Hunting, Forestry and Fishery Sectors (No.61)" that do not require qualifications is 6 times higher than the employees working in the "Personal and Protective Services Workers (No. 51)". On the other hand, the probability of working in a "good- job" for the employees in the "Life Science and Health Professional (No. 22)", is 11.6 times higher than the employees in the "Personal and Protective Services Workers (No. 51)". The probability of working in a "good- job" for the employees in the "Corporate Managers (No. 12)" and "Physical,

Mathematical and Engineering Science Professionals (No.21)" is 10 times higher than the employees in the "Personal and Protective Services Workers (No. 51)".

*3.5.2. "Good Job" and "Bad Job" in Turkish Labour Market according the Firm Size*

In this section of the study, by using the selected variables binary logistic regression analysis was applied for each firm size separately. In this analysis, the factors that affect "good job" and "bad job" in each firm size was investigated. According to the results, all variables in the model were found statistically significant. Thereby, for all firm sizes H2, H3, H4, H5, H6, H7 and H8 hypothesis were accepted (for all hypothesis p-value=0.000). Odds ratio and goodness of fit criteria for models in all firm size were given in Table 2.

According to the results, women were found disadvantage than men in all firm size. In Turkey, about 74% of those employed as WSD employee is man, 26% are women. The men who represent the majority of the WSD employees are taken as reference group and the results revealed that the probability of working in a "bad job" for women in all firm sizes is 2 times higher than the men. Age is a deterministic factor whether working in a "good job" or a "bad job". The probability of working in a "good job" for the WSD employees under the age of 60 increases, as the firm size increases. Compared to the age group 25-29, the probability of working in a "bad job" for the WSD employee age group 15-19 in the firms with less than 10 employees is 23 times, in the firms with 250-499 employees and more is 29 times higher. In other words, the age group 15-19's probability of working in a "bad job" increases when they work in a micro and macro business. According to the micro data set, 98% of WSD employees (age group 15-19) are working in "bad jobs". In all firm sizes, the probability of working in a "bad job" for 20-24 age groups is higher than 25-29 age groups. On the other side, in all firm sizes, the probability of working in a "good job" for 30-49 age groups is higher than 25-29 age groups. The age group of 30-49 can be considered as the rise of the carrier and the time period that human capital investment transfers from cost to benefit. In this context, of those aged 35 to 49, firm size increases, the probability of working in a "good job" increases. WSD employees (age group 50-54) who are in the last period of working life are mostly working in "bad jobs" (where in the firms with less than 10 employees) than age group 25-29. When firm size increases, the possibility of working in a "good job" increases.

The findings of the analysis indicate that, in all firm size, university, faculty or upper degree graduates' have the highest probability of working in a "good job". When firm size increases, the probability of working in a "bad job" increases for other groups in comparison with the university, faculty or upper degree graduates, (except vocational-technical high school graduates who employed in the firms with more than 250 employees). The group those without any school degree has the highest probability of working in a "bad job". The probability of working in a "good job" increases when the education level increases. In Turkey, only the 23.6% of WSD employees have a higher education. In the light of the data, in Turkey, one of every four WSD employees has a higher education and is working in a "good job". 78.8% of university, faculty or upper degree graduated WSD employees are working in a "good job". Based on the labour market segmentation theory, one can conclude that, university, faculty or upper degree graduated WSD employees are working in the internal markets where "good jobs" are available and other education level graduated WSD employees are working in the external markets "bad jobs" exist. However, in order to say other education level graduated WSD employees are working in the external markets, it is necessary to examined and reviewed the industry inventory. Nevertheless, due to the insufficient information in industry inventory, for example whether skilled and talented high school graduates, transform to the bad employees due to working in "bad jobs" or this situation's relationship with firm size cannot be directly assessed.

According to the marital status, in all firm size, the probability of working in a "good job" for married WSD employees is higher than singles (never married) (the odds ratio changes between 1.499 and 1.763). The probability of working in a "good job" for divorced WSD employees than singles (never married) is highest in the firms with 25-29 employees (odds ratio is 1.671). The probability of working in a "good job" for widowed WSD employees is 2.378 times higher than singles (never married) in the firms with 250-499 and more employees.

*Table 2. "Good jobs" and "Bad-jobs" Analysis in Turkey According to the Firm Size*

| | Less than 10 | 10-24 | 25-49 | 50-249 | 250 and more |
|---|---|---|---|---|---|
| Gender (R.G*.: Male) | ,435 | ,515 | ,554 | ,532 | ,448 |
| Age group (R.G.: Age Group 25-29) | | | | | |
| Age group 15-19 | ,043 | ,101 | ,150 | ,123 | ,034 |
| Age group 20-24 | ,433 | ,394 | ,398 | ,460 | ,367 |
| Age group 30-34 | 1,551 | 1,625 | 1,494 | 1,598 | 1,560 |
| Age group 35-39 | 1,660 | 1,795 | 1,743 | 2,107 | 2,320 |
| Age group 40-44 | 1,680 | 2,196 | 1,879 | 2,211 | 3,108 |
| Age group 45-49 | 1,381 | 1,332 | 1,886 | 2,721 | 3,266 |
| Age group 50-54 | ,681 | 1,510 | 1,809 | 2,120 | 2,652 |
| Age group 55-59 | ,489 | ,726 | ,742 | 1,448 | 1,833 |
| Age group 60-64 | ,272 | ,546 | ,563 | 1,062 | ,954 |
| Age group 65+ | ,214 | ,044 | 1,190 | 1,075 | ,434 |
| Education level (R.G.: university, faculty or upper) | | | | | |
| Without any scholl degree | ,104 | ,069 | ,085 | ,081 | ,087 |
| Primary school(5 year) | ,264 | ,218 | ,168 | ,134 | ,107 |
| Middle school and elemantry school (8 year) | ,404 | ,335 | ,224 | ,193 | ,180 |
| General High school | ,556 | ,505 | ,412 | ,342 | ,336 |
| Vocational or technical high school | ,521 | ,443 | ,425 | ,343 | ,452 |
| Marital Status (R.Gr.: Single (never married) | | | | | |
| Married | 1,701 | 1,499 | 1,763 | 1,704 | 1,528 |
| Divorced | ,993 | ,956 | 1,671 | 1,319 | ,638 |
| Widowed | ,890 | 1,691 | 1,444 | ,811 | 2,378 |
| Main activity of workplace (sector) (R.G.: Service) | | | | | |
| Agriculture | ,166 | ,263 | ,498 | 1,346 | ,338 |
| Industrial | 1,066 | ,959 | ,796 | ,750 | ,909 |
| Construction | ,668 | 1,037 | 1,056 | 1,075 | ,999 |
| Status of workplace (R.G.:Private) | | | | | |
| Public | 12,565 | 8,217 | 8,656 | 10,572 | 14,367 |
| Others | ,887 | ,824 | ,827 | 1,601 | 6,985 |
| Occupations (R.G.: Personal and protective services workers)** | | | | | |
| 11 | ,074 | 6,737 | 3,756 | 2,251 | 1,269 |
| 12 | 12,358 | 6,839 | 12,943 | 13,595 | 4,105 |
| 13 | 5,481 | 7,425 | 7,619 | 7,320 | 9,544 |
| 21 | 15,575 | 5,780 | 9,101 | 11,807 | 8,494 |
| 22 | 21,430 | 43,678 | 9,561 | 7,561 | 9,794 |
| 23 | 1,137 | 1,694 | 2,665 | 3,337 | 4,679 |
| 24 | 6,996 | 2,212 | 5,021 | 4,821 | 5,014 |
| 31 | 4,496 | 2,489 | 3,564 | 3,455 | 1,384 |
| 32 | 3,329 | 5,321 | 4,662 | 4,829 | 8,942 |
| 33 | ,429 | ,361 | ,226 | ,443 | 2,207 |
| 34 | 3,765 | 2,986 | 4,787 | 5,033 | 3,642 |
| 41 | 2,486 | 1,612 | 2,263 | 2,481 | 1,508 |
| 42 | 1,949 | 2,375 | 2,614 | 1,396 | 1,126 |
| 52 | 1,654 | 1,064 | 1,215 | 1,895 | 1,879 |
| 61 | ,791 | ,336 | ,743 | ,386 | ,278 |
| 71 | ,859 | 1,154 | 1,760 | 1,963 | 1,369 |
| 72 | 1,914 | 1,266 | 2,544 | 2,624 | 1,300 |
| 73 | 1,802 | 1,177 | 1,940 | 2,972 | ,520 |
| 74 | 1,580 | 1,041 | 1,690 | 1,359 | ,464 |
| 81 | 1,504 | ,585 | 1,210 | 1,292 | ,852 |
| 82 | 1,622 | ,773 | 1,425 | 1,194 | ,637 |
| 83 | 1,074 | 1,025 | 2,038 | 2,245 | 1,612 |
| 91 | ,302 | ,330 | ,451 | ,459 | ,227 |
| 92 | ,023 | ,132 | ,344 | ,338 | ,139 |
| 93 | ,277 | ,294 | ,491 | ,624 | ,514 |
| Constant | ,070 | ,243 | ,455 | ,684 | 1,240 |
| Correct Classification Rate (%) | 88,4 | 81,4 | 81,3 | 82,2 | 84,8 |
| Cox&Snell R Square | 0,251 | 0,396 | 0,428 | 0,452 | 0,481 |
| Nagelkerke R Square | 0,434 | 0,541 | 0,572 | 0,603 | 0,653 |
| -2 Log L | 2975449,074 | 1536878,590 | 2246614,790 | 2506998,380 | 1264684,800 |
| Hosmer-Lemeshow Statistics | 2334,817 | 4212,366 | 2579,492 | 2459,537 | 1917,62 |

**ISCO 88 occupation groups were shown in Appendix Table 1

In Turkey, working in the agriculture sector increases the probability of working in "bad jobs". Relative to the service sector, working in the agricultural sector (except the firms with 50-249 employees) increases the probability of working in "bad jobs". In the industry sector compared with the service sector, the probability of working in "bad jobs" increases since working in the other firm sizes except firms with less than 10 employees. In the construction

sector, relative to services sector, the probability of working in "bad jobs" increases in the firms with less than 10 employees.

In the public sector, the probability of working in "good jobs" in the firms with less than 10 employees is 12.565 times higher than the private sector. Compared to private sector, in the public sector the probability of working in "good jobs" in the firms with more than 10 employees is gradually increasing (odds ratio changes between 8.217 and 14.367).

According to the labour market segmentation theory, the productivity differences of jobs in the firms and industries are larger than the productivity differences of labour (Lordoğlu and Özkaplan, 2007). For instance, in all firm sizes employees in the sales and services elementary occupations (No. 91), employees in the agricultural, fishery and related labourers (No.92), employees in the labourers in mining, construction, manufacturing and transport (No.93), "are working in "bad jobs" relative to the employees in the market-oriented skilled agricultural and fishery workers (No.61) and personal and protective services workers (No.51). In this context, unqualified jobs take place in the low productivity external markets.

In the firm size with more than 250 employees, the probability of working in "bad jobs" for the employees in the precision, handicraft, craft printing and related trades workers (N0.73) is more than the employees in the other craft and related trades workers (No.74) and personal and protective services workers (No.51). Otherwise, in the other firm sizes their probability of working in "good jobs" is higher than the aformentioned occupations. In all firm sizes, the employees in the drivers and mobile plant operators (No.83) are working in "good jobs" than personal and protective services workers (No.51).

In firms with less than 250 employees, teaching professionals (No.23) is working in a "bad job" relative to "personal and protective services workers (No.51)". These employees can find a "good jobs" only in the firms with 250 and more employees. In Turkey, when analysing according to the "personal and protective services workers (No.51)", within the all occupations "Life science and health professionals (No.22)" is the highest probability of working in a "good job" (especially firms with 10-24 employee it is 43.678 times higher). When analysing according to the "personal and protective services workers (no.51)", the highest probability of working in a "good job" in the firms with 25-29 and 50-249 employees is the "corporate managers (no.12)" (odds ratio are 12.943 and 13.595, respectively). Compared to "personal and protective services workers (no.51)" the highest probability of working in a "bad job" in the firms with less than 10 employees is the "agricultural, fishery and related labourers (No.92)" (odds ratio 0.023).

Moreover, according to the model of different firm sizes some variables cannot find statistically significant these are: in the model of firms with less than 10 employees "widowed" (p value=0.528), in the model of firms with 50-249 employees "age 65+" (p value = 0.057), in the model of firms with 250 and more employees "age of 60-64" (p value = 0.204) and "construction sector" (p value=0,968).

## 4. Conclusion

In this study, the stratification in Turkish labor market was analyzed by using TurkStat HLS micro-data set. According to the analysis results, while 63.6% of jobs are found as "good jobs", 36.4% of jobs are found as "bad jobs". At this point, the distinction of "primary and secondary sector" in the labour market segmentation theory was supported. When this distinction is analyzed with the selected variables, hypothesis of H1 (There is a relationship between firm size and the qualification of job) was accepted. Moreover, a significant relationship was found between gender, age, education, and marital status, main activity of workplace (sector), status of workplace, occupations and the qualification of job. The employees who work in the "good jobs" are man, age group 40-44, university, faculty or upper degree graduates, married, working in the service sector, public sector and life science and health professionals (No. 22).

The validity of labour market segmentation theory was tested in the different firm sizes according to the selected variables. According to the analysis results, a significant relationship was found between selected variables in all firm

sizes and qualification of job and the hypothesis of H2, H3, H4, H5, H6, H7 and H8 were accepted. To be a woman increases the probability of working in a "bad job" in all firm sizes. The probability of working in a "good job" increases when age and firm size increases.

In all firm sizes, the highest probability of working in a "good job" for WDS employees is to have higher education, to work in the public sector, to be a corporate manager (No.12), to be managers of small enterprises (No.13), to be physical, mathematical and engineering science professionals (No.21) and to be life science and health professionals (No.22). Generally, in all firm sizes the WSD employees who work in "bad jobs" are to work as a WSD employee in agricultural sector, to be single (never married), employees in the sales and services elementary occupations (No.91), agricultural, fishery and related labourers (No.92) and labourers in mining, construction, manufacturing and transport (No.93).

Moreover, in Turkey, while assessing according to the reference groups the most disadvantageous group (working in "bad jobs") in the small size firms is the employees working in the agricultural, fishery and related labourers (No.92) and the age group 15-19; in the medium and large size firms is the group without any school degree and the WSD employees in the age group 15-19. The most advantageous groups (working in "good jobs") in the small size firms are life science and health professionals (No.22) and the age group 40-44; in the medium size firms are life science and health professionals (No.22), corporate managers (No.12), physical, mathematical and engineering science professionals (No.21) and the age group 45-49; in the large size firms are life science and health professionals (No.22), managers of small enterprises (No.13) and the age group 45-49.

In this study, a statistical relationship was found between firm size and the qualification of job. However, in order to interpret the relationship, an industry inventory is necessary where the technology used in the firms, production form, carrier opportunities and job training opportunities etc. properties were given.

By the nature of the jobs, firms in the external markets that host "bad jobs" employ low-skill and low-educated workforce. Therefore, the productivity will be lower and labour turnover rate will be higher in the aforementioned firms. This causes the loose of competitive advantage of firms in the long run and will reduce the profits. In this context, apart from this study where supply side is considered due to the scope of the micro data set, the demand side analyzes (in terms of employers) can be considered in the future studies. Furthermore, by eliminating the constraints of this study a field research can be performed.

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Appendix Table 1: International Standard Classification of Occupations (ISCO 88)

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| 51: Personal and protective services workers (R.G.) | 42: Customer services clerks |
| 11: Legislators and senior officials | 52: Personal and protective services workers |
| 12: Corporate managers | 61: Models, salespersons and demonstrators |
| 13: Managers of small enterprises | 71: Market-oriented Skilled agricultural and fishery workers |
| 21: Physical, mathematical and engineering science professionals | 72: Metal, machinery and related trades workers |
| 22: Life science and health professionals | 73: Precision, handicraft, craft printing and related trades workers |
| 23: Teaching professionals | 74: Other craft and related trades workers |
| 24: Other professionals | 81: Stationary plant and related operators |
| 31: Physical and engineering science associate professionals | 82: Machine operators and assemblers |
| 32 : Life science and health associate professionals | 83: Drivers and mobile plant operators |
| 33: Teaching associate professionals | 91: Sales and services elementary occupations |
| 34: Other associate professionals | 92: Agricultural, fishery and related labourers |
| 41: Office clerks | 93: Labourers in mining, construction, manufacturing and transport |